METHOD AND APPARATUS FOR SUPPLYING SYNTHETIC SALES HISTORIES

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BACKGROUND OF THE INVENTION

Reorderable goods for resale are sometimes called basic goods. The forecasting of demand or economic stocking levels for basic goods involves significant stakes for operators. At least some forecasting methods utilize data from past sales of a good to predict future sales. An issue arises when the good or selling location being forecast does not have a sales history. How is an artificial sales history generated and what effort is required of inventory personnel or users to generate it?

SUMMARY OF THE INVENTION

An aspect of the present invention includes a computer implemented method of supplying a sales history for a good lacking a sales history, including associating sales history data for sales of a cloned good at a plurality of selling locations with an other good; scaling the associated sales history data upward or downward based on anticipated sales of the other good; tracking actual sales of the other good for an interval; and rescaling the associated sales history data based on actual sales of the other good during the interval. Other aspects of the present invention are described in the claims, specification and drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Figures 1A-C depict scaling of a cloned sales history.

DETAILED DESCRIPTION

The following detailed description is made with reference to the figures. Preferred embodiments are described to illustrate the present invention, not to limit its scope, which is defined by the claims. Those of ordinary skill in the art will recognize a variety of equivalent variations on the description that follows.

Sales history cloning is useful for new goods and new selling locations which lack sales histories. This process is illustrated in figures 1A-C. A sales history for a new good, lacking its own sales history, can be created from a cloned good. The

cloned good is selected, preferably with an expectation that the new, other good will follow a selling pattern similar to the cloned good across a plurality of selling locations. A computer is used to associate the sales history for the cloned good with the other good at a plurality of selling locations. The sales history data of the cloned good can be copied into memory associated with the other good. Alternatively, it can be associated with the other good by a reference, such as the SKU for the cloned good or a record number, or by a pointer to a memory location or database record where it is stored.

As illustrated in figure 1A, the expected sales volume of the new good can be compared, quantitatively or subjectively, to the actual sales volume of the cloned good. A scaling factor, in some instances a ratio of the expected and actual sales volumes, can be used to scale the cloned sales history, as illustrated in figure 1B. This scaling factor can be used to modify or scale the cloned sales history, for instance by multiplying the factor by the data and storing the product. The scaling factor can be stored separately, and applied when the cloned sales history data is used, for instance by a forecasting engine.

The conversion factor can be modified based on actual sales, after an interval. This interval can be selected by a user when the cloned good is selected or it can be supplied as a default value (e.g., 7 days, 2 weeks, 4 weeks, 30 days, a month, a quarter, etc.) by the system without user selection. Actual sales of the good at the plurality of selling locations are tracked for the interval. If the actual sales rate exceeds or falls short of the expected sales rate, the original scaling factor is then dynamically scaled or adjusted to reflect that change. This adjusted scaling factor is then applied to the sales history that is used for forecasting sales, thereby generating a more accurate future forecast of selling. A rescaling factor is selected, for instance relative to a ratio of actual to expected sales. Selection of a rescaling factor can take into account causal factors impacting sales, such as promotions, advertising, reduced selling prices, etc. In this case it is not just a straight comparison of sales but it is a comparison that adjusts for which causal periods have been employed on the new item and makes sure that the comparison with the old item has a comparable weighting of the same causal periods. In instances where that causal period has not occurred in the past item then it either eliminates that time period for the recalculation of the scaling factor or applies a default lift (a specified sales increase relative to

regular sales days or some other comparative period) to the past item history and uses that estimate for the comparison. You frequently encounter new item introduction events during this time period, which for many retailers have higher increases in sales than a comparable event on an already existing item. So these types of factors may be accounted for in differentiation done in the causal factors. A causal calendar which tracks causal events impacting goods at particular selling locations is useful, if the rescaling factor is to take into account causal factors. A rescaled selling history is illustrated in figure 1C.

A rescaling factor can be selected once at the end of the interval or repeatedly beginning at the end of the interval. Rescaling can continue for a predetermined time or until a user manually discontinues the rescaling. One predetermined time when rescaling can be discontinued is when there is sufficient actual selling history for the new good to discontinue using cloned sales history. The system can also be set up to automatically revert to the actual selling history dismissing the cloned history at some future point in time set by such modes as number of actual sales days, number of comparable sales days or some function of sales volume.

A similar method can be used to create history for a new selling location, e.g., a new store. A user would specify a comparable store to clone for the new store and subjectively set a scaling factor for the new store sales relative to the comparable store. It is useful for the user to select a store with a seasonal selling pattern similar to the one expected for the new store, but the computer implemented method does not depend on the correctness of the user's selection. The user can subjectively assess the expected selling at the new store relative to the comparable store, for example if the new store was expected to sell twice the volume of the comparable store for this good then a scaling factor of 2 would be reasonable. Applying a single scaling factor to a store as a whole or a few scaling factors to a few groups of goods can reduce the burden of selecting scaling factors.

Cloned sales histories for a plurality of goods at a cloned location can be rescaled after an interval of sales, based on actual sales history. A user may selecting an initial period from the start of location selling, after which actual sales are used to adjust or rescale the sales history data. As discussed above, this interval may be of virtually any length. If the actual sales rate exceeds or falls short of the expected sales rate for the period, the original scaling factor is then dynamically scaled or adjusted to

reflect that change. This adjusted scaling factor is then applied to the sales history that is used for forecasting sales, thereby generating a more accurate future forecast of selling. This rescaling of the scaling factor can then be automatically recalculated as more selling data becomes available so that a better and better estimate of it is achieved. It is also done where different causal factors, e.g., presentations or events that change sales such as a price reduction of 25% or putting the item in the store window display, are factored in and compared appropriately. In this case it is not just a straight comparison of sales but it is a comparison that adjusts for which causal periods have been employed on the new item and makes sure that the comparison with the old item has a comparable weighting of the same causal periods. In instances where that causal period has not occurred in the past item, the system can either eliminate that time period for the recalculation of the scaling factor or applies a default lift (a specified sales increase relative to regular sales days or some other comparative period) to the past item history and uses that estimate for the comparison. The system can also be set up to automatically revert to the actual selling history dismissing the cloned history at some future point in time set by such modes as number of actual sales days, number of comparable sales days or some function of sales volume.

In both instance of new goods and selling locations, the system can automatically use actual sales data to search for a good or selling location, other than the cloned good or selling location, which more closely matches actual sales during an interval than was selected *a priori*. This search can involve a comparison on a causal period by causal period basis or time period by time period (e.g., day by day) of actual sales at various selling locations. So for example, in the instance of a new selling location, the system could proceed item by item to look at all the other stores with real selling history, compare the different causal selling period sales and suggest or select one or more selling locations with the most similar relationship of selling period results. A new set of sales history data would the be associated with the new, other good. After an interval, the scaling factor could be recalculated as described above against this comparable store. In a more rigorous test the comparison could be done on a day by day selling basis coming up with again the comparable store with the least difference in relationship of day to day selling.

Another instance for synthetically supplying a sales history where one is lacking is for a new good in a new selling location. Here, the system may allow a user to select a comparable good, followed by the system taking cloning the good to a cloned location. The system can run in a sequence (or effectively accomplish the following using a different computing path or execution sequence) so that it first completes any automatic scaling of the comparable good in the new location before the new location uses that comparable item to create the history for the new item and before the system conducts the automatic rescaling of the new location new item if that option has been selected by the user.

Another useful feature is so called SKU mapping, for goods that have been assigned new SKUs but are still the same basic product. For example, this occurs when a product receives new packaging. The new SKU sales might be expected to follow the sales history for the discontinued SKU. The method for cloning a sales history for a good applies nicely. In addition, mapping a new SKU for a good to an old SKU for a good can optionally be accompanied by flagging old and new inventory as basically interchangeable. That is, new inventory can be flagged as being available to meet demand for the cloned good, and vice-a-versa. A "map on hand" option can directs the system to count location, distribution center and other inventory (e.g., on hands and in transits) for a discontinued good against the required model stock or forecast demand for the new, repackaged good. Old packaged goods at the selling locations are naturally sold out before being replenished with the new goods, when the old good is allowed to meet demand for the new good.

While the preceding examples are cast in terms of a method, devices and systems employing this method are easily understood. A magnetic memory containing a program capable of practicing the claimed method is one such device. A computer system having memory loaded with a program practicing the claimed method is another such device.

While the present invention is disclosed by reference to the preferred embodiments and examples detailed above, it is understood that these examples are intended in an illustrative rather than in a limiting sense. It is contemplated that modifications and combinations will readily occur to those skilled in the art, which modifications and combinations will be within the spirit of the invention and the scope of the following claims.

We claim as follows: